

## REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

AD-A241 789



This estimate is based on a average of 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this burden to Washington Headquarters Services Directorate for Information Operations and Readiness, 1215 Jefferson, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

2. REPORT DATE		3. REPORT TYPE AND DATES COVERED	
		Final/1 Jan 90 - 31 Dec 90	
4. TITLE (INCLUDE SUBTITLE)		5. FUNDING NUMBERS	
Quo Vadis, Graph Theory? An Alaskan Conference on the Future Directions of Graph Theory (U)		61102F 2304/B1	
6. AUTHOR(S)		7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	
John Gimbel		University of Alaska Department of Mathematical Sciences Fairbanks, AK 99775-1110	
8. PERFORMING ORGANIZATION REPORT NUMBER		AFOSR-TR- 2 01880	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
AFOSR/NM Building 410 Bolling AFB DC 20332-6448		AFOSR-90-0078	
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION / AVAILABILITY STATEMENT		12b. DISTRIBUTION CODE	
Approved for Public Release; Distribution Unlimited		U	
13. ABSTRACT (Maximum 200 words)			
A successful conference with 77 participants was held from Aug 13 - 16, 1990 in Fairbanks, AK.			
 <b>91-13738</b> 			
14. SUBJECT TERMS		15. NUMBER OF PAGES	
		6	
17. SECURITY CLASSIFICATION OF REPORT		18. SECURITY CLASSIFICATION OF THIS PAGE	
UNCLASSIFIED		UNCLASSIFIED	
19. SECURITY CLASSIFICATION OF ABSTRACT		20. LIMITATION OF ABSTRACT	
UNCLASSIFIED		SAR	

Report to AFOSR

Grant Number: AFOSR-90-0078

Purchase Request No.: F08671-9000663

Title: Quo Vadis, Graph Theory? An Alaskan Conference on the Future  
Directions of Graph Theory

Grantee: University of Alaska

Principal Investigator: John Gimbel

It is a pleasure to report on the conference Quo Vadis, Graph Theory which was held on the University of Alaska Fairbanks campus August 13-16, 1990. The conference had 77 participants. Forty three were American citizens. Four came from industry. Two from the US government. One from the Office of Naval Research as well as one from the Naval Postgraduate School. Other countries with representatives at the conference are Canada, Italy, Israel, Denmark, Rumania, South Africa, France, Germany, Poland, England and Hungary. One of the principal goals of the conference was to encourage active participation by women. In this, we were very successful; 20 women attended. Also, we wished to emphasize the importance of graph theory in education. In this we were very successful. Some interesting lectures were given and a very good discussion ensued which included some insightful remarks from some of our foreign participants on the educational techniques used in their countries. Also, we had many non-graph theorists participate, including many professors from the University of Alaska and a graduate student in math education from New York City.

Our principal lecturers include some of the foremost researchers in graph theory. These are: Paul Erdős, William Tutte, Dominic J.A. Welsh, Ronald Read, Tom Trotter, Margaret Cozzens, Clyde Monma, Alexandru Ballaban, Nathaniel Dean, Joseph Malkevitch, Michal Karonski, Edgar Palmer, and Béla Bollobás. All gave outstanding lectures.



Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution _____	
Availability Codes _____	
Print	Serial
A-1	

## **Principal Speakers**

### **Combinatorial and Topological Methods**

Paul Erdős, *Combinatorial Techniques and Major Problems*

William T. Tutte, *Studying the Birkhoff-Lewis Coloring Equations*

Dominic J. A. Welsh, *Graph Theory and Knots*

### **Algorithmic Graph Theory**

Ronald C. Read, *Prospects for Graph Algorithms*

Tom Trotter, *On-Line Coloring of Graphs*

### **Applications**

Margaret B. Cozzens, *Quo Vadis, Graph Theory- Practical Applications*

Clyde L. Monma, *Applications of Graphs in Communications Networks*

Alexandru T. Ballaban, *Solved and Unsolved Problems in Chemical Graph Theory*

### **Impact of Graph Theory on Education**

Nathaniel Dean, *Computers for Teaching and Learning about Graphs*

Joseph Malkevitch, *Graph Theory and Public Perceptions of Mathematics*

### **Random Graphs and Enumeration**

Michał Karonski, *The Future Direction of Random Graphs*

Edgar M. Palmer, *Quo Vadis, Random Graph Theory?*

### **Summary**

Béla Bollobás

Fred S. Roberts

William T. Tutte

## **Participant List**

Brian B. Alspach	Simon Fraser University, Canada
Amos Altshuler	Ben Gurion University, Israel
Pat Andresen	University of Alaska Fairbanks, USA
Alexandru Balaban	The Polytechnic Institute, Rumania
Pat Andresen	University of Alaska Fairbanks, USA
Jørgen Bang-Jensen	University of Copenhagen, Denmark
Bruce Bauslaugh	Simon Fraser University, Canada
Gerhard Benadé	Rand Afrikaans Univ., South Africa
Dani Berend	Ben Gurion University, Israel
Jean-Claude Bermond	Informatique, CNRS, France
Katherine Block	Queens College, USA
Béla Bollobás	Cambridge University, England
Tom Brown	Simon Fraser University, Canada
Phyllis Z. Chinn	Humboldt State University, USA
Daniel I.A. Cohen	Hunter College, USA
Andrea M. Colbourn	Pace University, USA
Margaret B. Cozzens	Northeastern University, USA
Nathaniel Dean	Bellcore, USA
Paul Erdös	Hungarian Acad. of Science, Hungary
Ove Frank	University of Stockholm, Sweden
Marietjie Frick	Univ. of South Africa, South Africa
Daniel Gagliardi	I.B.M., Italy
Ron Gatterdam	University of Alaska Fairbanks, USA
Lucio Geronazzo	Universita Delgi, Italy
John Gimbel	University of Alaska Fairbanks, USA
Neal Glassman	A.F.O.S.R., USA
Luis Goddyn	Simon Fraser University, Canada
Erhard Godehardt	University of Dusseldorf, Germany
Hannibal Grubis	University of Alaska Fairbanks, USA
Ron Graham	Bell Labs, USA
Puhua Guan	Univ. of Puerto Rico, USA
Eleanor O'm Hare	Clemson University, USA
William Hare	Clemson University, USA
Kim A.S. Hefner	Naval Postgraduate School, USA
Katherine Heinrich	Simon Fraser University, Canada
Dushan Jevtic	University of Alaska Fairbanks, USA
John Kapenga	Caltech, USA

Almira Karabeg	Oakland University, USA
Dino Karabeg	Oakland University, USA
Michal Karonski	Adam Mickiewicz University, Poland
John W. Kennedy	Pace University, USA
Suh-ryung Kim	St. Johns University, USA
Pete Knoke	University of Alaska Fairbanks, USA
Clif Lando	University of Alaska Fairbanks, USA
Martin Lewinter	SUNY at Purchase, USA
Marc Lipman	Office of Naval Research, USA
Joseph Malkevitch	York College, USA
Casimir Mally	CUNY, USA
Susan Marshall	Simon Fraser University, Canada
William McCuaig	University of Victoria, Canada
Clyde L. Monma	Bellcore, USA
Edgar M. Palmer	Michigan State University, USA
Claudine Peyrat	Informatique, CNRS, France
Michael D. Plummer	Vanderbilt University, USA
Laura Lee Potrikus	University of Alaska Fairbanks, USA
Louis V. Quintas	Pace University, USA
Milan Randic	Drake University, USA
Ronald C. Read	University of Waterloo, Canada
Fred S. Roberts	Rutgers University, USA
Andrzej Rucinski	Adam Mickiewicz University, Poland
Olga Salizkiy	Hofstra University, USA
J. Schonheim	Tel Aviv University, Israel
Sy Schuster	Carleton College, USA
Karen Seyffarth	Simon Fraser University, Canada
Vera Sós	Hungarian Acad. of Science, Hungary
Richard Steinberg	AT&T Bell Laboratories, USA
Henda C. Swart	University of Natal, South Africa
William T. Trotter	Arizona State University, USA
William T. Tutte	University of Waterloo, Canada
Christine Virlouvet	University of Paris, France
Dominic J.A. Welsh	University of Oxford, England
William F. Widulski	Westchester Community College, USA
Paul A. Winter	University of Natal, South Africa
Mary Wyatt	University of Alaska Fairbanks, USA
Min-Li Yu	Simon Fraser University, Canada
Qinglin Yu	Simon Fraser University, Canada
Cun-Quan Zhang	West Virginia University, USA

## **Conference Directors**

Five Mathematicians served together as codirectors. They are Phyllis Chinn, John Gimbel, John Kennedy, Louis Quintas and Fred Roberts. In addition, Ronald Graham acted as a conference consultant.

- Phyllis Z. Chinn is full professor of mathematics at Humboldt State University in Arcata, California. Phyllis has been involved with several conferences, including coordinator for the First West Coast Conference on Combinatorics, Graph Theory and Computing. Professor Chinn is active in the Association for Women in Mathematics. She has published a number of papers on research mathematics and teaching.
- John G. Gimbel is an associate professor of mathematics at The University of Alaska Fairbanks. He is the principal investigator of this grant.
- Ronald L. Graham is director of the mathematics division of AT&T Bell Labs in Murray Hill, New Jersey. Ronald is a graduate of the University of Alaska Fairbanks and further received an honorary doctorate from the university in 1988. Ronald concurrently served as conference codirector of the International Congress of Mathematicians held in Japan during the Summer of 1990.
- John W. Kennedy is full professor in the Mathematics Department at Pace University, New York City. John has a background in both mathematics and physical chemistry.
- Louis V. Quintas is full professor in the Mathematics Department at Pace University. Louis served on the organizing committee for the First China-USA Conference on Graph Theory, held in Jinan, China during the Summer of 1986 and was co-chair of several International Combinatorial Mathematics conferences sponsored by the New York Academy of Sciences.
- Fred S. Roberts is a mathematician at RUTCOR and full professor of mathematics at Rutgers University. He has acted as organizer of 17 scientific meetings, including the SIAM 25th anniversary meeting and three SIAM conferences on discrete math. Fred is the author of four books on applied mathematics, including the classic *Discrete Mathematical Models*. Fred has a deep knowledge of practical applications of graph theory.

### Addresses & Phone Numbers

(1)	Phyllis Z. Chinn Department of Mathematics Humboldt State University Arcata, CA 95521	(2)	John G. Gimbel Mathematical Sciences University of Alaska Fairbanks, AK 99775-1110
	(707) 826-4131		(907) 474-6102
(3)	Ronald L. Graham AT&T Bell Labs Math Science Research Center Room 2C-282 600 Mountain Avenue Murray Hill, NJ 07974	(4)	John W. Kennedy Mathematics Department Pace University Pace Plaza New York, NY 10038
	(201) 582-4696		(212) 488-1786
(5)	Louis V. Quintas Mathematics Department Pace University Pace Plaza New York, NY 10038	(6)	Fred S. Roberts Math Department Rutgers University New Brunswick, NJ 08903
	(212) 488-1200		(201) 932-2365